

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 25

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* TOSHISUKE SAKAI  
and NARUMI NAGASE

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Appeal No. 1996-1088  
Application 08/251,999

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ON BRIEF

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Before HAIRSTON, WARREN and OWENS, *Administrative Patent Judges*.

OWENS, *Administrative Patent Judge*.

*DECISION ON APPEAL*

This is an appeal from the examiner's final rejection of claims 1-15, which are all of the claims in the application.

*THE INVENTION*

Appellants' claimed invention is directed toward an apparatus for electrolyzing source water such as city water or

well water into water containing alkali ions and water containing acid ions (specification, page 1, lines 6-9).

Claims 10 and 12 are illustrative and read as follows:

10. An apparatus for generating alkali ion water, comprising:

an electrolytic cell for electrolyzing source water into alkali ion water and acid ion water;

means for supplying a dc voltage to the electrolytic cell; and

mans [sic: means] for varying a mean value of the dc voltage at a constant rate.

12. An apparatus for generating alkali ion water, comprising:

an electrolytic cell for electrolyzing source water into alkali ion water and acid ion water;

means for supplying a dc voltage to the electrolytic cell; and

means for detecting a rate of a variation in a mean value of the dc voltage.

#### *THE REFERENCES*

Lin	4,946,574	Aug. 7,
1990		
Yamaguchi et al. (Yamaguchi)	5,051,161	Sep. 24,
1991		
Saito	5,055,170	Oct. 8,
1991		
Arai	5,306,409	Apr. 26,
1994		

*THE REJECTIONS*

The claims stand rejected under 35 U.S.C. § 103 as follows: claims 1, 2 and 10-15 over Saito taken with Arai; claims 3-9 over Saito taken with Arai and Yamaguchi; and claims 6-9 over Saito taken with Arai, Yamaguchi and Lin.

*OPINION*

We have carefully considered all of the arguments advanced by appellants and the examiner and agree with appellants that the aforementioned rejections are not well founded. Accordingly, we reverse these rejections.

*Rejection of claims 1, 2 and 10-15  
over Saito taken with Arai*

Independent claims 1 and 10 require "means for varying a mean value of the dc voltage at a constant rate." The examiner states that Saito discloses (col. 4, lines 64-68) that "[t]he controller controls the base voltage of the transistor **34** in correspondence with the result of the calculation, thereby controlling the output voltage of the transistor **34**, namely, the voltage applied to the electrolytic cell **3**", and acknowledges that Saito does not disclose the recited voltage varying means (answer, page 3). The examiner

points out that Arai discloses "a switching regulator **16** of the pulse width modulating type (PWM) for controlling dc power supply in a stepless manner" (col. 4, lines 20-22), and that appellants' voltage varying means includes a pulse width modulator (specification, page 14, lines 16-18). The examiner argues that one of ordinary skill in the art would have been motivated to combine the references because 1) Saito generically discloses a controller, and one of ordinary skill in the art would have selected Saito's controller from among the controllers known in the art, such as Arai's controller, and 2) use of Arai's control of the electrolyzing voltage in response to a flow rate measurement would have been an improvement over Saito's control scheme (answer, page 4). The combined control system, the examiner argues (answer, page 12), would permit control which is responsive to either detection of voltage drop as in Saito (col. 5, lines 5-68) or flow rate and temperature variations as in Arai (col. 2, lines 56-62).

In order for a *prima facie* case of obviousness to be established, the teachings from the prior art itself must

appear to have suggested the claimed subject matter to one of ordinary skill in the art. See *In re Rinehart*, 531 F.2d 1048, 1051, 189 USPQ 143, 147 (CCPA 1976). The mere fact that the prior art could be modified as proposed by the examiner is not sufficient to establish a *prima facie* case of obviousness. See *In re Fritch*, 972 F.2d 1260, 1266, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992). The examiner must explain why the prior art would have suggested to one of ordinary skill in the art the desirability of the modification. See *Fritch*, 972 F.2d at 1266, 23 USPQ2d at 1783-84.

The examiner has not provided the required explanation as to why the prior art itself would have fairly suggested, to one of ordinary skill in the art, the modification proposed by the examiner. Saito requires that the voltage applied to the electrolytic cell is that which is obtained by multiplying a predetermined voltage ( $V_n$ ) for obtaining an ion concentration which is the same as that in reference water, by a constant ( $k$ ) which is the ratio of the voltage drop of the reference water to the voltage drop of the examined water (col. 5, line 60 - col. 6, line 5). The examiner has not

explained why the references would have indicated to one of ordinary skill in the art that Saito's system would function as desired if the voltage applied to the electrolytic cell were either additionally or alternatively based on the flow rate, quality and temperature of the water as in Arai's system (col. 2, lines 14-21 and 56-62). Thus, the record indicates that the motivation relied upon by the examiner for combining the references comes solely from the description of appellants' invention in their specification and that, therefore, the examiner used impermissible hindsight when rejecting the claims. See *W.L. Gore & Associates v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984); *In re Rothermel*, 276 F.2d 393, 396, 125 USPQ 328, 331 (CCPA 1960). Accordingly, we reverse the rejection of independent claims 1 and 10 and the claims which depend therefrom.

Independent claims 12 and 13 require "means for detecting a rate of variation in a mean value of the dc voltage", and independent claim 14 requires "means for gradually increasing an effective level of the dc voltage at a rate" and "means for

limiting the rate to within a predetermined range." The examiner argues that Arai's controller is capable of providing a rate of change in the measured values provided to it (answer, pages 6 and 13). This argument is not well taken because, as discussed above, the examiner has not established that the teachings of Saito and Arai would have fairly suggested, to one of ordinary skill in the art, using Arai's controller in Saito's control system. We therefore reverse the rejection of claims 12-14 and claim 15 which depends from claim 14.

*Rejection of claims 3-9 over Saito taken with  
Arai and Yamaguchi, and rejection of claims 6-9  
over Saito taken with Arai, Yamaguchi and Lin*

Independent claims 3 and 6 require "means for varying a mean value of the dc voltage at a constant rate." For the reasons given above regarding claims 1 and 10, which include this limitation, we reverse the rejection of claim 3 and claim 4 which depends therefrom, and the rejections of claim 6.<sup>1</sup>

The examiner argues that claim 5 stands or falls with

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<sup>1</sup>The examiner relies upon Yamaguchi for a disclosure of a mineral adding device (answer, page 7), and not for any teaching which would have fairly suggested, to one of ordinary skill in the art, the voltage varying means discussed above.

claims 3 and 4, and claims 7 and 8 stand or fall with claim 6 (answer, pages 8-9). Because the examiner has not established a *prima facie* case of obviousness of the inventions recited in claims 3, 4, and 6, as discussed above, and has not explained why the inventions recited in claims 5, 7 and 8 are unpatentable over the applied references, we reverse the rejections of claims 5, 7 and 8.

Regarding claim 9, the examiner argues that Arai's items 31-36 are indicators, but does not explain why an apparatus including each of the elements recited in the claim would have been fairly suggested, to one of ordinary skill in the art, by the applied references. Accordingly, we reverse the rejection of claim 9.



Appeal No. 1996-1088  
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*DECISION*

The rejections under 35 U.S.C. § 103 of claims 1, 2 and 10-15 over Saito taken with Arai, claims 3-9 over Saito taken with Arai and Yamaguchi, and claims 6-9 over Saito taken with Arai, Yamaguchi and Lin, are reversed.

*REVERSED*

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KENNETH W. HAIRSTON	)	
Administrative Patent Judge	)	
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	)	
	)	BOARD OF PATENT
CHARLES F. WARREN	)	
Administrative Patent Judge	)	APPEALS AND
	)	
	)	INTERFERENCES
	)	
TERRY J. OWENS	)	
Administrative Patent Judge	)	

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